MASSACHUSETTS FOREST WATCH

July 9, 2010

Commonwealth Of Massachusetts
Executive Office of Energy and Environmental Affairs
Department Of Energy Resources
100 Cambridge St., Suite 1020
Boston, MA 02114
Via e-mail: doer.biomass@state.ma.us

Re: Comments to "Manomet" Biomass Sustainability and Carbon Policy Study

Despite the many flaws documented below regarding the "Manomet" study, the state of Massachusetts deserves congratulations for courageously calling out the naked emperor on his fantastical claims that forest burning is carbon neutral. This important shift may literally help the entire world step back from the suicidal notion of burning its forests for energy.

While it may have shaken up the biomass world with its conclusion that burning forests for electric is worse than burning coal in 40 years, the Manomet study appears to have significantly underestimated the carbon impacts of burning forests by using forestry modeling assumptions that are neither rational nor likely to occur on the ground. With all models there is an element, sometimes severe, of uncertainty that could lead to widely different conclusions, and in this case, the model seems to have been "pushed" to minimize just how bad burning forests can be from a carbon perspective. This outcome was expected considering the high political and economic stakes involved, and the vested interests in biomass and logging performing the work, but should not preclude further study into the impacts of burning existing trees vs fossil fuels before asking citizens to subsidize biomass burning.

Most important, the Manomet conclusion that switching from oil to burning standing forest could reduce carbon emissions in 40 years is highly doubtful for the reasons outlined below and deserves much more scrutiny before travelling down this road. The impact of this likely to be false conclusion could simply transfer the carbon and forest impacts expected to occur from large electric plants into a "death by a thousand cuts" from a multitude of "small" CHP plants.

It should be noted that the Manomet study has claimed that at current prices, the expected new biomass availability of between 150,000 to 250,000 tons would support 20 MW of new production. While it is quite likely that burning even this much new biomass would actually increase carbon emissions rather than reduce them as required by law, it must also be remembered that there are already many Massachusetts CHP biomass and other "small" wood-burning proposals in the pipeline that may already exceed this 20 MW threshold. Thus, a moratorium of permitting new CHP biomass plants should be put in place while the carbon realities are further scrutinized before we end up subsidizing a technology that would have the opposite of the intended effect of reducing carbon emissions.

The following list documents the assumptions and methodology that appears to "push" the Manomet modeling to minimize rather than accurately assess the impacts of biomass burning of existing forests versus other energy sources.

1. Doubtful Assumptions in Modeling.

The report's conclusions rest entirely on the false assumption that logging in Massachusetts will be performed in a manner that maximizes carbon sequestration, yet the methods called for do not match current logging requirements, practices, nor even match common sense expectations.

a. The model depends on forests not being logged again until they have re-grown for a long period to converge to the carbon stocking of an unmanaged stand. This is an uncontrolled requirement, and does not match the typical cutting patterns of logged forestlands. It is completely unreasonable to expect that forest landowners are going to wait to log their forests until the carbon stocks have reached a theoretical level called for in the Manomet study.

b. The model depends upon only harvesting biomass on land already logged for timber. This is very unlikely, as the large increased wood demand from biomass plants would almost certainly open up areas for logging that would not otherwise be logged, particularly lands that do not have commercially valuable sawtimber.

c. The model depends on cutting large trees in order to maximize theoretical new growth rates. Burning large trees runs contrary to all industry claims about using biomass harvests to remove small understory trees to "improve" forest stands, and conflicts with standard practice of using large trees for sawtimber.

d. The model does not include any carbon releases from soil disturbance. This is a major flaw, as it is well known that soil disturbance and root decay have major impacts on soil stored carbon levels. Impacts of logging on soil carbon stocks has the potential to seriously affect the overall forest carbon storage level and cannot be ignored.

e. Considering that there is ongoing and significant debate about how much tops and limbs left on the forest floor are required to maintain soil health, using 65% of tops and limbs seems recklessly high. Because using tops and limbs is so favorable to the carbon balance, it appears that this amount was maximized to improve the biomass profile rather than to preserve soil health, which is the lynchpin of the forest ecosystem.

2. Doubtful Methodology

As mentioned earlier, the report appears arranged to minimize rather than accurately illuminate the impacts of burning existing forest biomass.

a. The report takes pains to study 6 different forest harvesting scenarios and then discards the results of 5 of them by choosing to use scenario 1, which is more favorable to biomass as the report's final conclusion. Averaging the scenario's would be more logical and representative.

b. Much of the report talks about a single year operational impact and "carbon debt payoff" (ie. Figure 3), leading the inattentive reader to likely view biomass more favorably than the reality which is shown in a cumulative analysis. While the single year impact may be useful to build a cumulative model, it is irrelevant to the operation of a continuously operating biomass plant and should not be so prominently highlighted.

c. There is no margin of error analysis. The margin of error for an activity such as forestry can be very large and has not been accounted for. It appears that the assumptions were "pushed" to make biomass look better than it truly may be, and in essence pushed the biomass impacts to the side of the margin of error preferable to the biomass and logging interests. It is quite telling that even with so many assumptions favorable to biomass, forest biomass could still not match up favorably against coal electric plants, the second worst (to biomass) of all carbon polluters.

It is quite possible, very likely even, that the error from using such unlikely forestry assumptions would cause the results to be much worse for biomass than indicated. As framed now, the report gives the sense that existing forest biomass could provide benefits for CHP plants, when in fact this is not likely to be accurate.

d. There is a question as to why in Figure 2, "Carbon Debt Summary Table", are Biomass Carbon Debts said to be 31% and 66% respectively to coal and natural gas, yet in Exhibit 2-1, "Electrical Generation Pathway CO2 emissions", Biomass is said to emit 2,945 lbs CO2 /kwh versus 2,189 lbs CO2 /kwh for coal and 1,211 lbs CO2 /kwh for natural gas. Wouldn't this represent a carbon debt of 35% and 143% respectively to coal and natural gas?

Most importantly, these emission numbers represent values of stack emissions for existing coal and natural gas plants. New coal and gas plants emit significantly lower CO2. New gas plants emit about 750 lbs CO2 /kwh. Emissions from new fossil fuel plants should be the basis for any comparison to new biomass plants. If they have not been, this is a major error.

e. No comparisons been made to cleaner, non combustive technologies such as solar, wind, geothermal, etc.

Finally, the Manomet study has not included or compared the impacts of biomass plants to other energy sources in terms of air quality, water and other impacts. These equally important environmental and social impacts need to be considered as well when asking citizens to subsidize biomass burning as "clean" energy.

Sincerely,

Chris Matera, P.E.
(WA State Registered)
Massachusetts Forest Watch
Northampton MA 01060
413-341-3878